

## CLAIMS

What is claimed is:

1. A method of making a gas diffusion media for a fuel cell, comprising the steps of:

cutting carbon fibers into predetermined lengths;

forming a paper material using the chopped carbon fibers;

impregnating the paper material with a thermoset resin material;

molding the impregnated paper material to a predetermined thickness and density; and

heating the molded impregnated paper material to a carbonization temperature without heating to a graphitization temperature.

2. The method according to claim 1, wherein said carbonization temperature is between 900°C and 1400°C.

3. The method according to claim 1, wherein said graphitization temperature is greater than 1900°C.

4. The method according to claim 1, wherein said molded impregnated paper material is a rolled web.

5. The method according to claim 1, wherein said gas diffusion media has a carbon content less than 99.5 weight percent.

6. The method of claim 1, wherein said gas diffusion media has a d-spacing (d(002)) of 3.44 Angstroms or higher.

7. A method of making a fuel cell, comprising the steps of:  
processing a diffusion media by forming a paper material using cut carbon fibers; impregnating the paper material with a resin material; molding the impregnated paper material; and heating the molded impregnated paper material to a carbonization temperature without heating to a graphitization temperature;  
placing a pair of diffusion media sheets on opposing sides of a proton-exchange-membrane; and  
placing a bipolar plate on opposite sides of said diffusion media sheets from said proton-exchange-membrane.

8. The method according to claim 7, wherein said diffusion media has a carbon content less than 99.5 weight percent.

9. The method of claim 7, wherein said gas diffusion media has a d-spacing (d(002)) of 3.44 Angstroms or higher.

10. A fuel cell, comprising:

a proton exchange membrane having a cathode catalyst on one surface thereof and an anode catalyst on an opposite surface thereof;

a diffusion media sheet disposed on opposite sides of said proton exchange membrane, said diffusion media sheet having a carbon content less than 99.5 weight percent; and

a pair of bipolar plates on opposite sides of said diffusion media sheets from said proton exchange membrane.

11. A fuel cell, comprising:

a proton exchange membrane having a cathode catalyst on one surface thereof and an anode catalyst on an opposite surface thereof;

a diffusion media sheet disposed on opposite sides of said proton exchange membrane, said diffusion media sheet having a d-spacing of 3.440 or higher; and

a pair of bipolar plates on opposite sides of said diffusion media sheets from said proton exchange membrane.